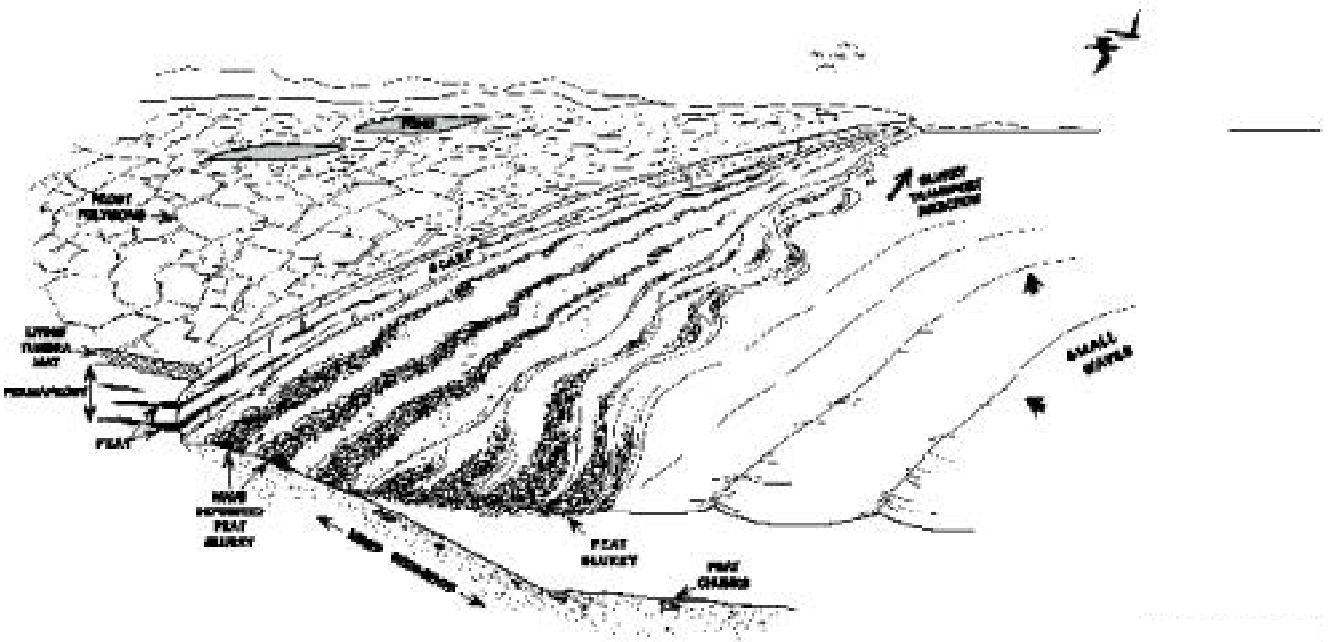
Peat Shores



Peat Shores

Description

- This shoreline type includes exposed peat scarps, eroded peat, and peat slurries.
- Exposed peat scarps occur where the peat is frozen.
- They are highly erosional (>1 meter/year), resulting from wave action, ice scour, and melting of the frozen peat.
- The intertidal zone is often very complex, with slumped peat blocks and a thin (and temporary) sand layer on the peat.
- Eroded peat occurs as a peat mat or veneer in a dewatered state, deposited on a sand or gravel beach; it is usually less than 20 cm thick and considered to be relatively transient.
- Peat slurries (which have the appearance of coffee grounds) are up to 50 cm thick and 10 meters wide.
- Peat slurries are found at the foot of eroding peat scarps and in depositional areas; they are relatively permanent features that move along the shore with the currents.
- Peat shorelines comprise about 70 percent of the Beaufort Sea coast of Alaska.
- The intertidal zone of this shoreline type is not particularly important as biological habitat.

Predicted Oil Behavior

- Oil could be stranded onshore only during the ice-free summer season.
- Oil penetration and persistence are expected to be very low in frozen peat scarps.
- Light oil can penetrate peat slurries, especially when the peat is dry.
- Peat resists penetration by heavy oils, even when dry.
- Peat slurry reacts with oil like loose granular sorbent and will partially contain and prevent the oil from spreading.

Response Considerations

- The peat substrate is soft, thus cleanup will be difficult; trampling is less of concern where peat is frozen or work is conducted from boats.
- Substrate disruption is of limited concern because of high erosion rates so long as adjacent tundra is not disturbed.
- Peat slurry may be used as a natural sorbent; sorption will be more effective with liquid and fresh oils.
- With high erosion rates, stranded oil will have a short residence time.
- Tundra cliffs are commonly undercut and naturally unstable, so safety is a primary concern during response operations.
- Hot-water washing or even low-pressure flushing activities are not appropriate because large quantities of peat could be eroded from the treatment area.

Peat Shores

Oil Category Descriptions

I – Gasoline products
II – Diesel-like products and light crudes
III – Medium grade crudes and intermediate products
IV – Heavy crudes and residual products
V – Non-floating oil products

The following categories are used to compare the relative environmental impact of each response method in the specific environment and habitat for each oil type. The codes in each table mean:

A = The least adverse habitat impact.
B = Some adverse habitat impact.
C = Significant adverse habitat impact.
D = The most adverse habitat impact.
I = Insufficient information - impact or effectiveness of the method could not be evaluated.
— = Not applicable.

	Oil Category				
Response Method	**I**	**II**	**III**	**IV**	**V**
Natural Recovery	A	A	A	A	A
Barriers/Berms	–	–	–	–	–
Manual Oil Removal/Cleaning	C	B	B	B	B
Mechanical Oil Removal	D	D	D	D	D
Sorbents	–	A	A	B	B
Vacuum	–	B	B	B	B
Debris Removal	C	B	B	B	B
Sediment Reworking/Tilling	C	C	B	B	B
Vegetation Cutting/Removal	D	D	C	C	C
Flooding (deluge)	C	B	B	C	D
Low-pressure, Ambient Water Flushing	C	B	B	C	D
High-pressure, Ambient Water Flushing	–	–	–	–	–
Low-pressure, Hot Water Flushing	–	–	–	–	–
High-pressure, Hot Water Flushing	–	–	–	–	–
Steam Cleaning	–	–	–	–	–
Sand Blasting	–	–	–	–	–
Solidifiers	–	–	–	–	–
Shoreline Cleaning Agents	–	–	–	–	–
Nutrient Enrichment	–	B	B	C	C
Natural Microbe Seeding	–	I	I	I	I
In-situ Burning	–	–	–	–	–

Consult the *Environmental Considerations for Marine Oil Spill Response* document referenced on page 5 before using this table.